Practice: 655 - Forest Trails and Landings

Scenario: #1 - Water Bar Installation with Light Shaping and Grading

Scenario Description:

Rehabilitation of existing forest access trails and landings by addressing erosion and sedimentation through light shaping/grading and the installation of water bars. Typically the trail is a single lane, existing 12-foot wide seasonal or temporary trail on a moderate slope (10%) on forestland requiring sustained erosion control measures applied by using traditional logging equipment such as a log skidder or dozer. The purpose is to hydrologically disconnect existing trail/landing system from the streams and natural drainages. This scenario applies to only those segments of the trail system that have resource concerns requiring rehabilitation. A typical water bar installed in this scenario is on a 75 to 80 foot spacing with a depth of about 1 foot. Some hand work (chainsaw) will be needed to allow the use of the equipment without causing damage to residual trees. The work will be supervised. No mobilization is required, as equipment and personel are already on site. Other practices such as Stream Crossing, and Critical Area Planting, Access Road and Structure for Water Control can be adjacent/appurtenant but not part of this practice scenario . Resource concerns include: Excessive sedimentation in surface waters, Concentrated flow erosion, Sheet and rill erosion, and Degradation of wildlife species.

Before Situation:

Trails are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

After Situation:

Trails and landings provide access and do not adversely affect the resources concerns.

Scenario Feature Measure: Number of water bars

Scenario Unit: Each

Scenario Typical Size: 34

Scenario Cost: $2,083.07 **Scenario Cost/Unit:** $61.27

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.37	1	$6.37
Log skidder	942	Equipment and power unit costs. Labor not included.	Hour	$129.99	3	$389.97
Water Bars	1500	Installation of graded trail water controlling structures such as water bars, broad based dips for erosion control. Typical cross section is 1.5 feet high with 4:1 side slopes yielding about 0.33 CY/ft of length.	Foot	$2.76	510	$1,407.60
Labor						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.84	3	$83.52
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$86.59	2	$173.18
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.43	1	$22.43

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Scenario: #2 - Shaping and Grading

Scenario Description:

Rehabilitation of existing forest access trails and landings by addressing rutting, erosion, and sedimentation through shaping and grading and installing other widely spaced mitigating practices such as broad based drainage dips, water bars, and water turnouts. Typically the trail is a single lane, existing 12-foot wide seasonal or temporary trail on a relatively flat slopes (2%) on forestland requiring sustained erosion control measures applied by using traditional logging equipment such as a log skidder or dozer. The purpose is to hydrologically disconnect the existing trail/landing system from streams and natural drainages and to establish a vegetative cover. Some hand work (chainsaw) will be needed to allow the use of the equipment. The work will be supervised. Other practices such as Stream Crossing, and Critical Area Planting. Access Road and Structure for Water Control can be adjacent/appurtenant but not part of the practice scenario. Treatments are for long-term reduction of sediment, restore fish habitat, create fire access and to move routes off unstable slopes. Resource concerns include: Excessive sediment in surface waters, Concentrated and Sheet & rill flow erosion, Soil compaction, and Habitat degradation.

Before Situation:

Trail/landings are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

After Situation:

A trail system is installed that provides access to the forested tract and does not cause excessive erosion or water quality concerns.

Scenario Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 2,640

Scenario Cost: $1,270.98 **Scenario Cost/Unit:** $0.48

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.37	1	$6.37
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$68.02	4	$272.08
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$86.59	1	$86.59
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.43	1	$22.43
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.84	4	$111.36
Materials						
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	$17.04	30	$511.20
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$260.95	1	$260.95

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Scenario: #3 - Shaping and Grading with Vegetation Establishment

Scenario Description:

Rehabilitation of existing forest access trails and landings by addressing rutting, erosion, and sedimentation through shaping and grading and installing other widely spaced mitigating practices such as broad based drainage dips, water bars, and water turnouts. It also includes seedbed preparation, seeding and soil amendments determined to be needed. Typically the trail is a single lane, existing 12-foot wide seasonal or temporary trail on a relatively flat slope (2%) on forestland requiring sustained erosion control measures applied by using traditional logging equipment such as a log skidder or dozer. The purpose is to hydrologically disconnect the existing trail/landing system from streams and natural drainages and to establish a vegetative cover. Some hand work (chainsaw) will be needed to allow the use of the equipment. The work will be supervised. Other practices such as Stream Crossing, and Critical Area Planting. Access Road and Structure for Water Control can be adjacent/appurtenant but not part of the practice scenario. Treatments are for long-term reduction of sediment, restore fish habitat, create fire access and to move routes off unstable slopes. Resource concerns include: Excessive sediment in surface waters, Concentrated and Sheet & rill flow erosion, Soil compaction, and Habitat degradation.

Before Situation:

Trail/landings are delivering sediment to waterways, impacting riparian/wetlands and/or possibly affecting fish/T&E species. The usefulness of the trail/landing system is being adversely affected by erosion.

After Situation:

A trail system is installed that provides access to the forested tract and does not cause excessive erosion or water quality concerns.

Scenario Feature Measure: Length of trail treated

Scenario Unit: Foot

Scenario Typical Size: 2,640

Scenario Cost: $1,862.05 **Scenario Cost/Unit:** $0.71

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Seeding Operation, Broadcast, Ground	959	Broadcast seed via ground operation. May require post tillage operation to incorporate seed. Includes equipment, power unit and labor costs.	Acre	$12.05	0.73	$8.80
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$9.73	0.73	$7.10
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	$6.50	0.73	$4.75
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	$10.67	0.73	$7.79
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	$6.37	1	$6.37
All terrain vehicles, ATV	965	Includes equipment, power unit and labor costs.	Hour	$31.08	2	$62.16
Dozer, 80 HP	929	Track mounted Dozer with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	$68.02	4	$272.08
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$86.59	1	$86.59
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.84	4	$111.36
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	$22.43	1	$22.43
Materials						

Materials

Nitrogen (N), Ammonium Nitrate	69	Price per pound of N supplied by Ammonium Nitrate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.72	60	$43.20
Aggregate, Gravel, Ungraded, Quarry Run	1099	Includes materials, equipment and labor	Cubic yard	$17.04	30	$511.20
One Species, Warm Season, Introduced Perennial Grass (seed or sprigs)	2323	Native, warm season perennial grass seed or sprig. Includes material and shipping only.	Acre	$59.62	0.73	$43.52
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.27	90	$24.30
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	$0.30	90	$27.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	$22.86	0.5	$11.43

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	$260.95	1	$260.95
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	$175.51	2	$351.02

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Scenario: #4 - Temporary Stream Crossing

Scenario Description:

The design and installation of a temporary stream crossing on small order streams that will meet the immediate forest management/conservation needs. Afterwards the crossing will be restored and stabilized. Improperly designed and/or installed stream crossings will, in the long term, adversely affect water quality and aquatic life. Approaches will also be stabilized for the use of the crossing and stabilized afterwards as necessary. Installation will be supervised. Permanent and/or high-traffic crossings will be designed and installed according to the Stream Crossing (578) Standard. Resource concerns include: Excessive sediment in surface waters and Habitat degradation.

Before Situation:

Access to a forested tract is not available for the installation of conservation practices or removal of forest products due to the lack of a suitable stream crossing(s).

After Situation:

Access was available to address other resource concerns/management needs and the stream is restored to its previous or better condition.

Scenario Feature Measure: Number of crossings

Scenario Unit: Each

Scenario Typical Size: 1

Scenario Cost: $834.92 **Scenario Cost/Unit:** $834.92

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price ($/unit)	Quantity	Cost
Equipment/Installation						
Log skidder	942	Equipment and power unit costs. Labor not included.	Hour	$129.99	2	$259.98
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	$86.59	2	$173.18
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12”, Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	$27.84	2	$55.68
Materials						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	$24.72	14	$346.08